RHAMNUS FRANGULA L., Sp. Pl. 193. 1753.—Mr. W. M. Van Sickle, of West New York, N. J., reports the discovery of additional specimens of this interesting European buckthorn in the swamp at Secaucus, some distance from the present known locality at New Durham. The problem concerning its mode of introduction into the United States is a difficult one to solve. The fact of Michaux's Arboretum having been situated on the site of the present New Durham swamp indicates that it may have been originally planted there, and thriving under favorable conditions, spread rapidly and in time developed trees of the size now found. It was long ago reported from Flushing, Long Island, but this station is now apparently obliterated.—CHARLES LOUIS POLLARD, *Washington, D. C.*

Pebble mimicry in Philippine island beans.—In looking over a keg of pebbles collected from the coast of Marinduque by Dr. Joseph B. Steere in his expedition of 1887–8, some beans were found which surprisingly resemble the water-worn pebbles with which they were associated. The mimicry is so perfect that almost every one is deceived until an opportunity for handling them is afforded, and even after being made aware of their nature mistakes will still occur. Inquiry developed the fact that these beans are produced by a coarse briar confined, as was expected, to the narrow strip of gravelly beach and met with here and there upon various members of this group of islands. Sending out trailing stems to a distance of twenty to thirty feet, carrying a leaf similar to that of the rose, they form a mat from three to four feet in height quite difficult to penetrate. Dr. Steere found the natives collecting them for shipment to Manila, to be used, as they said, in the manufacture of soap.

The beans, themselves, are sub-ellipsoidal in form, but show much irregularity in shape, apparently from mutual pressure in the pod. Indeed, here is one of the striking points of the mimicry, some perfectly resembling well rounded beach pebbles, while others mimic pebbles which have been broken across and then had their sharp edges rounded by continued friction. A handful of the beans shows as much and the same character of variation as is seen in the same number of quartz pebbles. The size is as variable as the shape, the three dimensions ranging in different specimens studied from 10 to 23^{mm}; in a typical specimen being about $17\times18\times14^{mm}$. The color varies from moderately dark to light drab, some giving a faint greenish tinge, while the luster of many is exactly that of chert pebbles. In others of lighter color the effect is similar to that obtained from pebbles of chalcedony or of crystallized quartz. Nearly all the specimens show a series of approximately parallel darker

lines passing around, very suggestive of stratification. All are quite hard, cut only with difficulty with a knife, and when shaken together in the hand give that clinking sound, only somewhat duller, which is characteristic of pebbles. The mimicry then is that of mixed quartz pebbles and covers *shape*, *size*, *color*, *luster*, *hardness* and *stratification*. It is so complete and perfect that it can not be regarded as mere coincidence. Placed in water the beans are found to be buoyant and nine weeks soaking in sea water, at about 70° F. seems to make no impression upon them, proving that they might be transported to considerable distance by waves and ocean currents.

It becomes a matter of interest to offer some speculation as to how this mimicry may have been produced since the principles involved seem to be just the opposite of those which usually hold for seeds. In the first place we must assume that we have had a plant growing within or near tide limits and supplying food for mammals or birds, distributed over the adjacent islands. It is true that these seeds are now very hard and exceedingly bitter, but these qualities may have developed along with the others for which we are to account. Indeed, they have been asking favors of neither fowl nor beast but pleading in their own way to be simply let alone. From any particular crop of seeds those most conspicuous would be carried away first, and if any remained they would probably be those, which from their external characters, most resembled the pebbles about them. It would be these from which would be produced the new plants as the parents died out, or from which, when floated to adjacent shores, new colonies would be founded. It is believed, eminent authority to the contrary, that these would have a *tendency* to produce seeds somewhat similar. Very many of the conspicuous variety would continue to appear through a long series of generations, but it would be these always which would be first to be gathered and carried away. This selection continued through an indefinite time, combined with the tendency to transmit the parental characters to the offspring, would bring about the described results. In general, those seeds which fail to secure distribution are smothered out by the parent plant or by the favored one which gets the start of its fellows. Individual characters are soon obliterated through cross-fertilization. In the case of these beans, however, the waves and currents step in and quietly bear them to other shores where large numbers, which have been subjected to this selecting process, may have an opportunity for simultaneous growth and development. In the case of the Philippines there may thus take place with relative rapidity what might otherwise be impossible on a continuous stretch of coast alone. Somewhere upon the islands, either

upon the coast or inland, we should expect to find one or more related species, bearing conspicuous, softer and more palatable seeds (as in the case of the so-called "Florida bean"), the ancestors of which had been carried from the beach when the process of selection in the two directions began.—W. H. SHERZER, *State Normal School, Ypsilanti, Mich.*

Lichens, the only "thallophytes."—It is with great pleasure that I go through the new text-books of botany; their wealth of material and new views of classification are of extreme interest. The large amount of space devoted to cryptogams, more especially to the lower cryptogams, is in great contrast to the limited space accorded them in earlier works. The general method, too, is quite different; there is everywhere a severe strain after the homologies, while the analogies and affinities of the old botanists are scarcely considered.

We are furnished with new terms in vast profusion, contributing greatly to conciseness of thought and facility of expression. It would seem superfluous to ask for anything more in this respect; nevertheless it seems to me it would conduce greatly to ease and brevity of reference and description, to have a technical term for the vegetative system, and another for the reproductive system of plants in general. It is true that *vegetation* and *fructification* are made use of, but they are not technical terms, because they are employed with other meanings.

Fitting terms are used in some of the classes of plants. The vegetative and reproductive systems of a fungus are clearly and broadly indicated by *mycelium* and *sporophore*, those of a myxomycete by *plasmodium* and *sporangium*, of a lichen by *thallus* and *apothecium*. But in descriptive works upon the algæ, there is great confusion and uncertainty in the terms; we find cell, thread, filament, frond, stem, etc., in common use for the vegetative system and a greater multitude of terms for the reproductive system. These are all well enough in their special applications, but there is need of a pair of contrasting terms for each separate function in general. Wallroth, who was much given to invention of terms, employed the term *physeuma* to cover "frons, filum, caulis, folium" of Agardh.

This leads me to speak of the term *thallus*. The usage of the writers of the text-books and that of the writers of systematic works do not coincide. None of the latter speak of the *thallus* of a fungus; they say *mycelium*, or sometimes they revert to the component *hyphæ*. Even in certain cases where its use might be suggested, as in *Solenia anomala* Pers., we find the tubules "sitting on a *mycelium*," or in "*Peziza fusca* Pers., where the ascomata rest on a "*subiculum*." I have